

Fig. 1

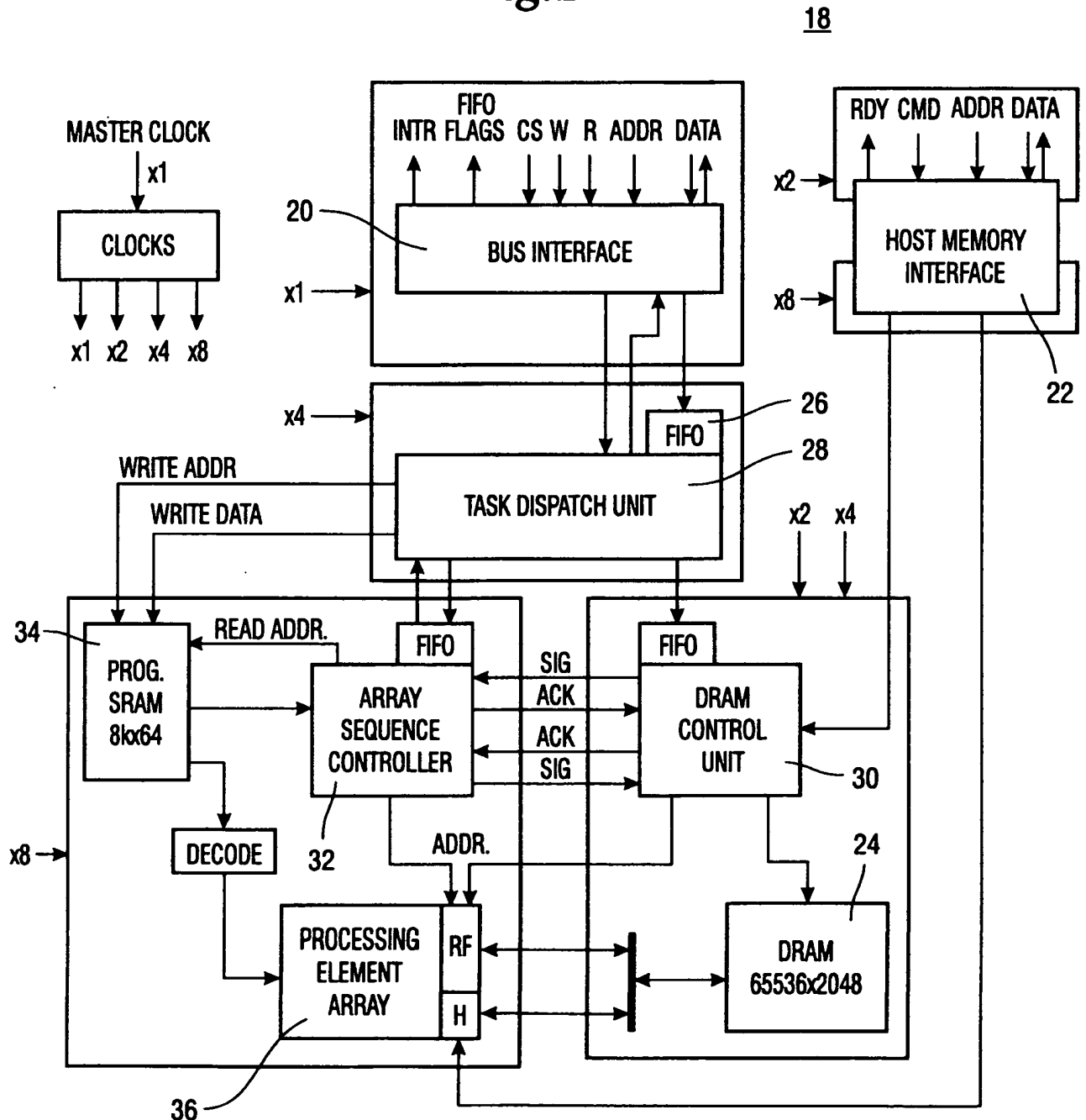


Fig. 2

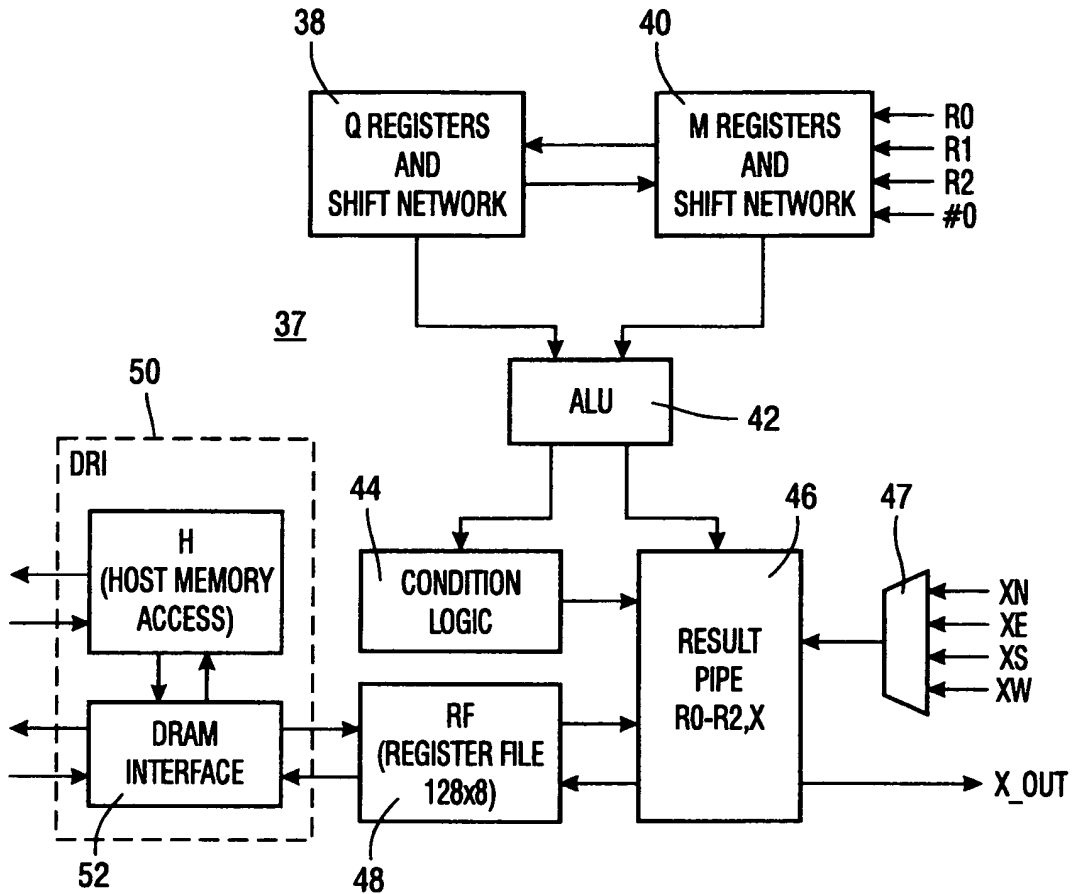


Fig.3

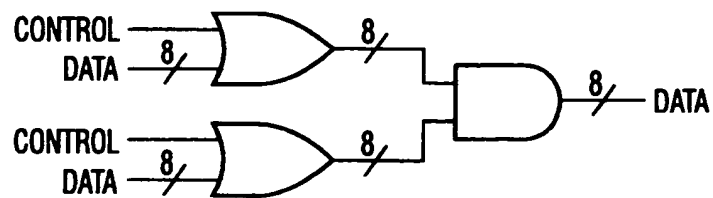


Fig.4

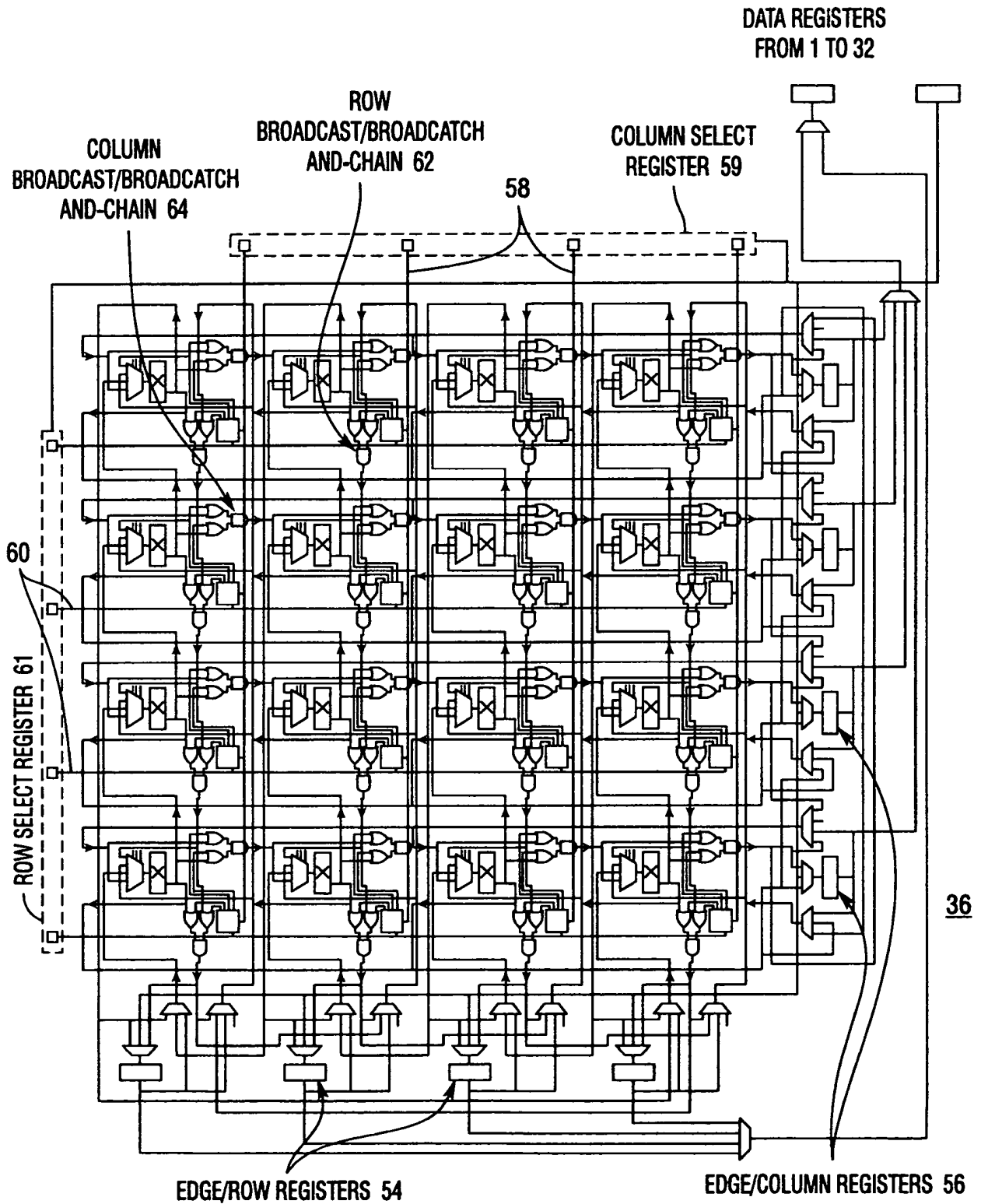
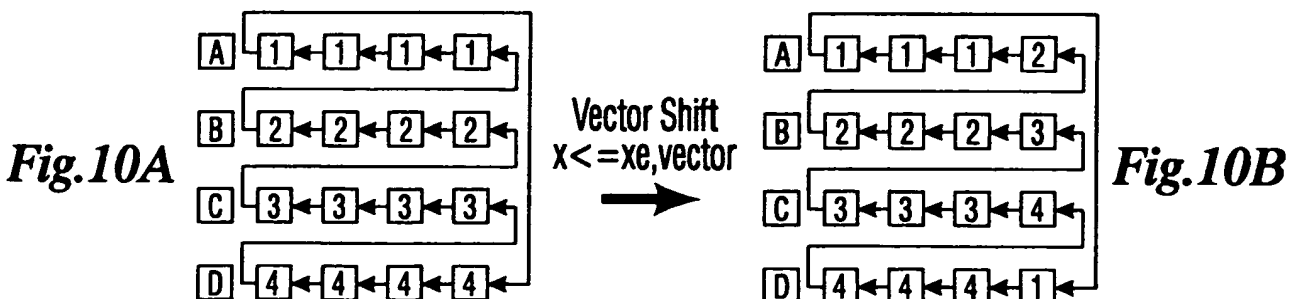
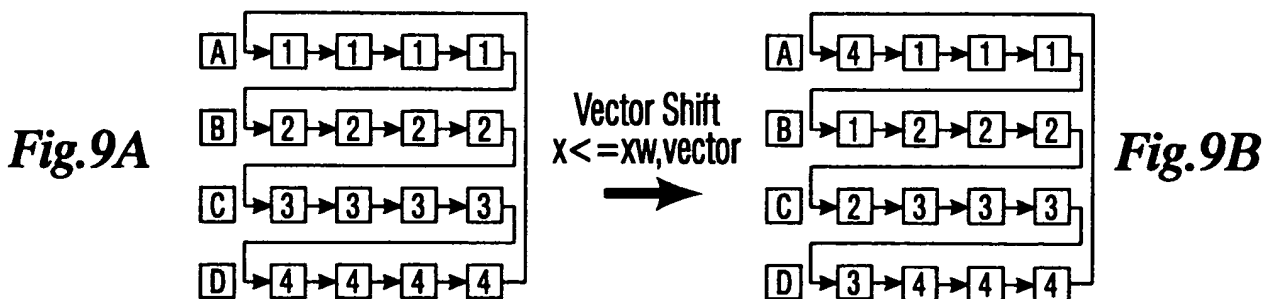
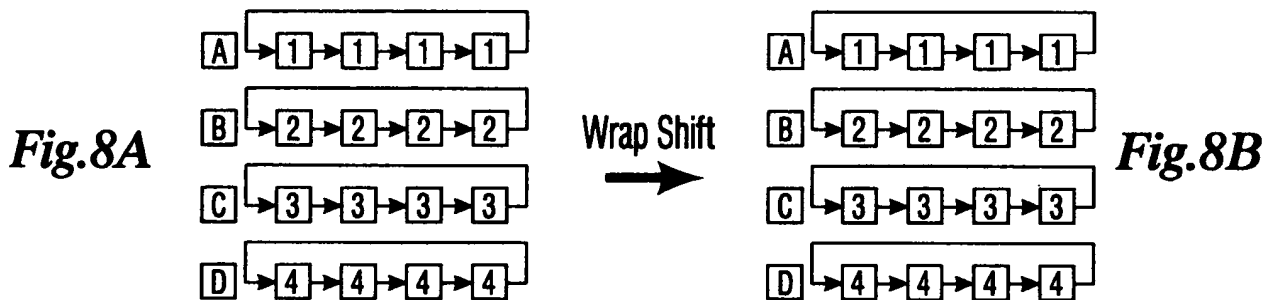
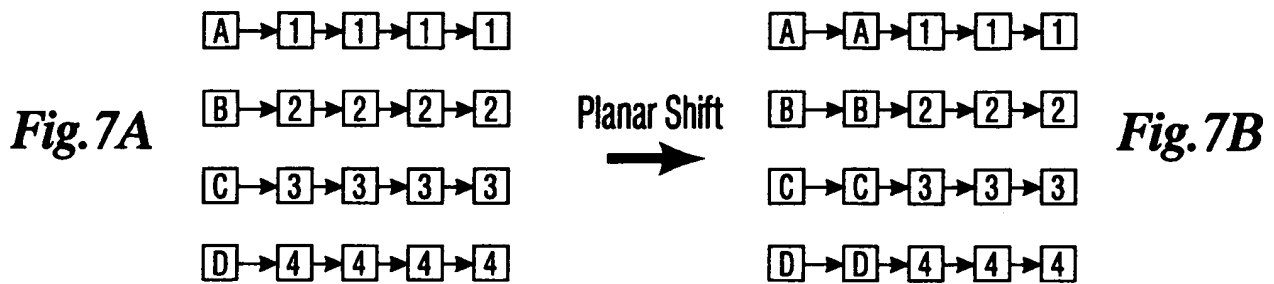
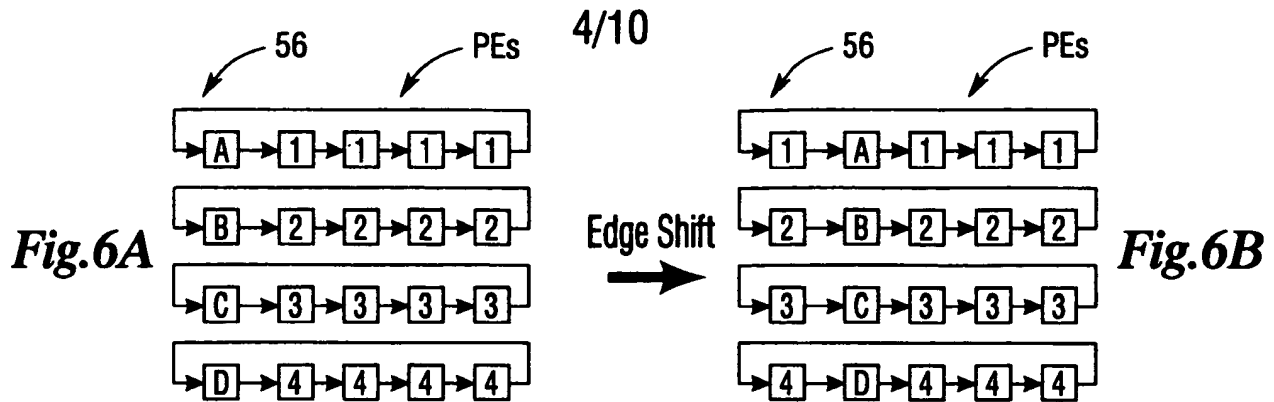
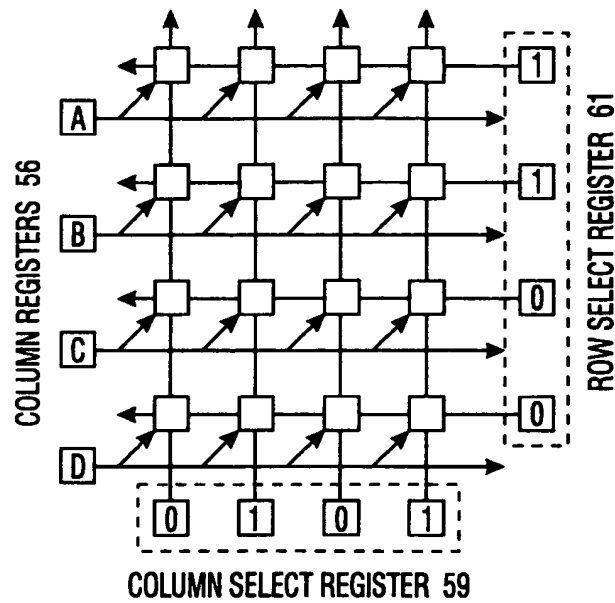
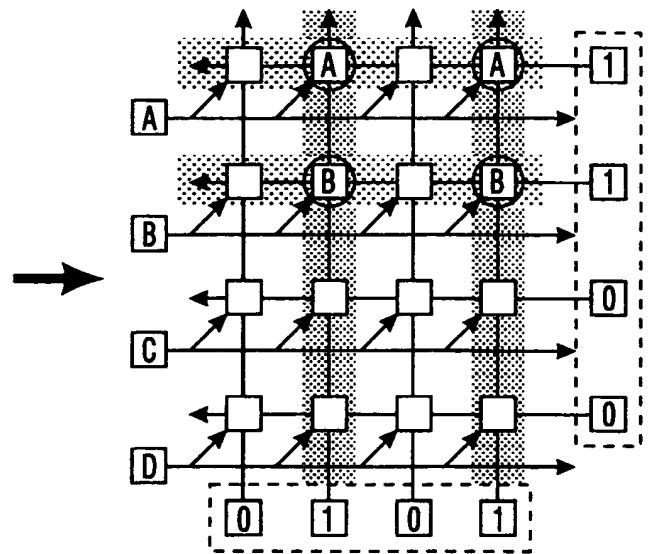
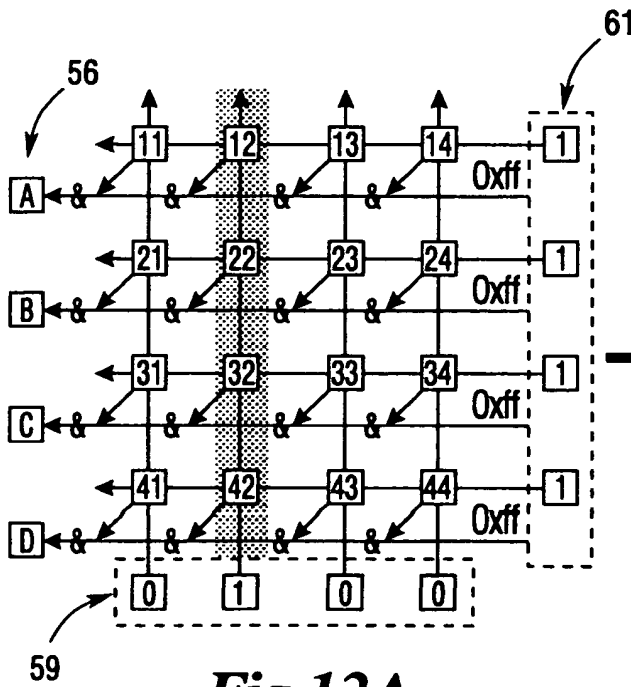
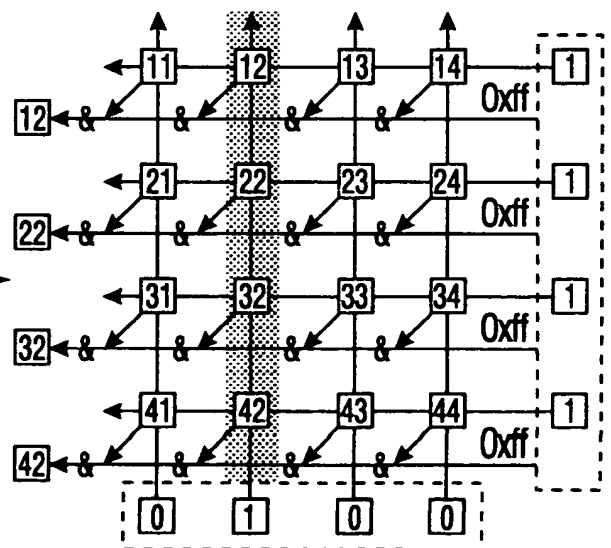
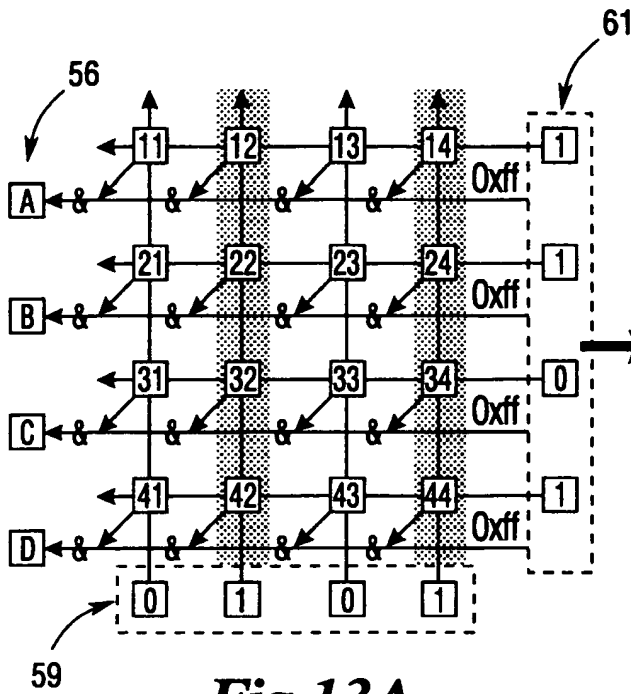
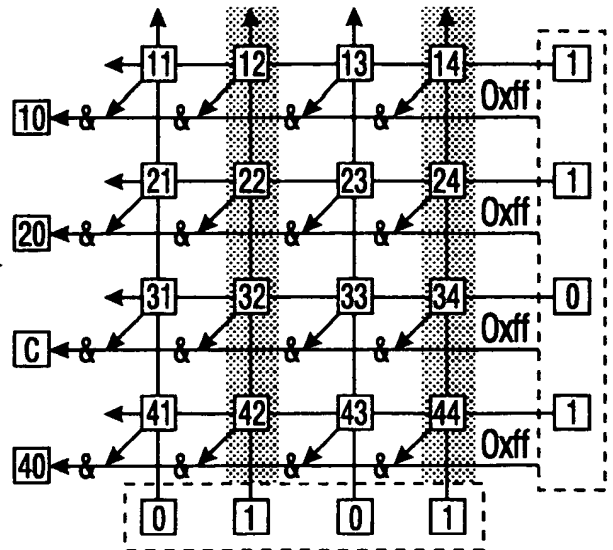
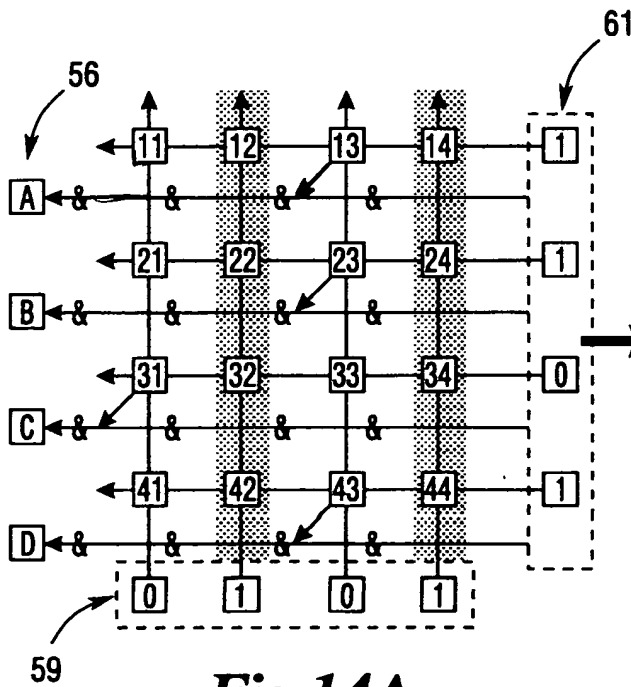
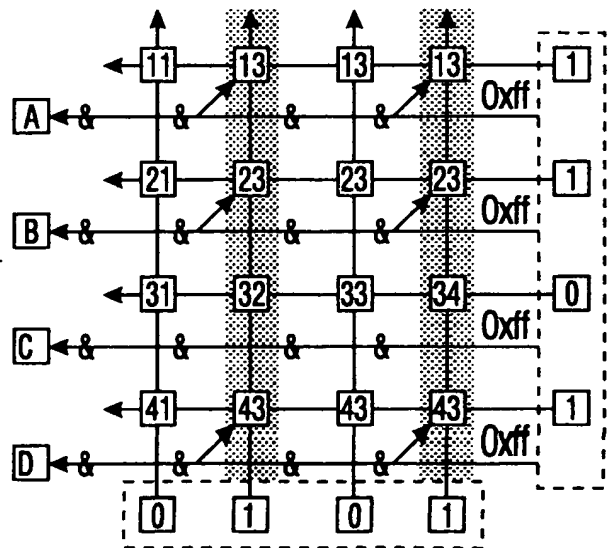


Fig.5

Replacement Sheet



*Fig.11A**Fig.11B**Fig.12A**Fig.12B*

*Fig. 13A**Fig. 13B**Fig. 14A**Fig. 14B*

Replacement Sheet

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| | | | |
|---|---|---|---|
| a | b | c | d |
| e | f | g | h |
| i | j | k | l |
| m | n | p | q |

Fig.15A

| | | | | |
|-----|---|---|---|---|
| X= | 0 | 1 | 2 | 3 |
| C= | 3 | 2 | 1 | 0 |
| R=0 | a | e | i | m |
| 1 | b | f | j | n |
| 2 | c | g | k | p |
| 3 | d | h | l | q |

Fig.15B

| | | | | | |
|-----|---|---|---|---|--|
| | 0 | 1 | 2 | 3 | |
| | 3 | 2 | 1 | 0 | |
| Y=3 | q | l | h | d | |
| 2 | p | k | g | c | |
| 1 | n | j | f | b | |
| 0 | m | i | e | a | |

Fig.15C

Input Data

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 |
| a2 | b2 | c2 | d2 | e2 | f2 | g2 | h2 |
| a3 | b3 | c3 | d3 | e3 | f3 | g3 | h3 |
| a4 | b4 | c4 | d4 | e4 | f4 | g4 | h4 |
| a5 | b5 | c5 | d5 | e5 | f5 | g5 | h5 |
| a6 | b6 | c6 | d6 | e6 | f6 | g6 | h6 |
| a7 | b7 | c7 | d7 | e7 | f7 | g7 | h7 |
| a8 | b8 | c8 | d8 | e8 | f8 | g8 | h8 |

Fig.16A

Output Data

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| a1 | a2 | a3 | a4 | a5 | a6 | a7 | a8 |
| b1 | b2 | b3 | b4 | b5 | b6 | b7 | b8 |
| c1 | c2 | c3 | c4 | c5 | c6 | c7 | c8 |
| d1 | d2 | d3 | d4 | d5 | d6 | d7 | d8 |
| e1 | e2 | e3 | e4 | e5 | e6 | e7 | e8 |
| f1 | f2 | f3 | f4 | f5 | f6 | f7 | f8 |
| g1 | g2 | g3 | g4 | g5 | g6 | g7 | g8 |
| h1 | h2 | h3 | h4 | h5 | h6 | h7 | h8 |

Fig.16B

Replacement Sheet

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| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
|----------------|----|----|----|----|----|----|----|----|--------------------|
| Fig.17A | a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 | ORIGINAL DATA |
| Fig.17B | h2 | a2 | b2 | c2 | d2 | e2 | f2 | g2 | 1st PAIR OF SHIFTS |
| Fig.17C | g3 | h3 | a3 | b3 | c3 | d3 | e3 | f3 | 2nd PAIR OF SHIFTS |
| Fig.17D | f4 | g4 | h4 | a4 | b4 | c4 | d4 | e4 | 3rd PAIR OF SHIFTS |
| Fig.17E | e5 | f5 | g5 | h5 | a5 | b5 | c5 | d5 | 4th PAIR OF SHIFTS |
| Fig.17F | d6 | e6 | f6 | g6 | h6 | a6 | b6 | c6 | 5th PAIR OF SHIFTS |
| Fig.17G | c7 | d7 | e7 | f7 | g7 | h7 | a7 | b7 | 6th PAIR OF SHIFTS |
| Fig.17H | b8 | c8 | d8 | e8 | f8 | g8 | h8 | a8 | 7th PAIR OF SHIFTS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 6 | 7 | 0 | 1 | 2 | 3 | 4 | 5 |
| 5 | 6 | 7 | 0 | 1 | 2 | 3 | 4 |
| 4 | 5 | 6 | 7 | 0 | 1 | 2 | 3 |
| 3 | 4 | 5 | 6 | 7 | 0 | 1 | 2 |
| 2 | 3 | 4 | 5 | 6 | 7 | 0 | 1 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 0 |

Fig.18

Replacement Sheet

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| | | | | | | | | |
|-------------------------|---------------------|----|----|----|----|----|----|----|
| | STEP 1 - INITIALIZE | | | | | | | |
| INPUT DATA | a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 |
| OUTPUT (TRANPOSED) DATA | | | | | | | | |
| COUNT | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Fig.19A

| | | | | | | | | |
|-------------------------|-------------------------|----|----|----|----|----|----|----|
| | STEP 2 - TEST (LOAD A1) | | | | | | | |
| INPUT DATA | a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 |
| OUTPUT (TRANPOSED) DATA | a1 | | | | | | | |
| COUNT | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Fig.19B

| | | | | | | | | |
|-------------------------|------------------------|----|----|----|----|----|----|----|
| | STEP 3 - 1ST DECREMENT | | | | | | | |
| INPUT DATA | a1 | b1 | c1 | d1 | e1 | f1 | g1 | h1 |
| OUTPUT (TRANPOSED) DATA | a1 | | | | | | | |
| COUNT | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

Fig.19C

| | | | | | | | | |
|-------------------------|-----------------------------|----|----|----|----|----|----|----|
| | STEP 4 - 1ST PAIR OF SHIFTS | | | | | | | |
| INPUT DATA | h2 | a2 | b2 | c2 | d2 | e2 | f2 | g2 |
| OUTPUT (TRANPOSED) DATA | a1 | | | | | | | |
| COUNT | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

Fig.19D

| | | | | | | | | |
|-------------------------|-------------------------|----|----|----|----|----|----|----|
| | STEP 5 - TEST (LOAD A2) | | | | | | | |
| INPUT DATA | h2 | a2 | b2 | c2 | d2 | e2 | f2 | g2 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | | | | | | |
| COUNT | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

Fig.19E

| | | | | | | | | |
|-------------------------|------------------------|----|----|----|----|----|----|----|
| | STEP 6 - 2ND DECREMENT | | | | | | | |
| INPUT DATA | h2 | a2 | b2 | c2 | d2 | e2 | f2 | g2 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | | | | | | |
| COUNT | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |

Fig.19F

| | | | | | | | | |
|-------------------------|-----------------------------|----|----|----|----|----|----|----|
| | STEP 7 - 2ND PAIR OF SHIFTS | | | | | | | |
| INPUT DATA | g3 | h3 | a3 | b3 | c3 | d3 | e3 | f3 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | | | | | | |
| COUNT | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |

Fig.19G

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•
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Replacement Sheet

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STEP 8 - TEST (LOAD A3)

| | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|
| INPUT DATA | g3 | h3 | a3 | b3 | c3 | d3 | e3 | f3 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | a3 | | | | | |
| COUNT | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |

Fig.19H

STEP 9 - 3RD DECREMENT

| | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|
| INPUT DATA | g3 | h3 | a3 | b3 | c3 | d3 | e3 | f3 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | a3 | | | | | |
| COUNT | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |

Fig.19I

STEP 22 - 7TH PAIR OF SHIFTS

| | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|
| INPUT DATA | b8 | c8 | d8 | e8 | f8 | g8 | h8 | a8 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | a3 | a4 | a5 | a6 | a7 | |
| COUNT | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 |

Fig.19J

STEP 23 - TEST (LOAD A8)

| | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|
| INPUT DATA | b8 | c8 | d8 | e8 | f8 | g8 | h8 | a8 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | a3 | a4 | a5 | a6 | a7 | a8 |
| COUNT | -7 | -6 | -5 | -4 | -3 | -2 | -1 | 0 |

Fig.19K

STEP 24 - 8TH DECREMENT

| | | | | | | | | |
|-------------------------|----|----|----|----|----|----|----|----|
| INPUT DATA | b8 | c8 | d8 | e8 | f8 | g8 | h8 | a8 |
| OUTPUT (TRANPOSED) DATA | a1 | a2 | a3 | a4 | a5 | a6 | a7 | a8 |
| COUNT | -8 | -7 | -6 | -5 | -4 | -3 | -2 | -1 |

Fig.19L